

**UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF NEW YORK**

BRIAN BARRY, on Behalf of Himself and All  
Others Similarly Situated,

Plaintiff,

vs.

JOHN DOES,

Defendants.

Civil Action No. 1:18-cv-02615

CLASS ACTION COMPLAINT

JURY TRIAL DEMANDED

Plaintiff Brian Barry (“Plaintiff”), individually and on behalf of all others similarly situated, as defined below, alleges the following based upon his own personal knowledge and upon information and belief as to all other matters.

**NATURE OF THE ACTION**

1. This action arises from Defendants’ scheme to manipulate the final settlement price of futures and options contracts linked to the Chicago Board Options Exchange (“CBOE”) Volatility Index (“VIX”), products traded on the CBOE, and the CBOE Futures Exchange (“CFE”), an affiliate of the CBOE. As set forth in greater detail below, Defendants’ unlawful scheme violates Section 1 of the Sherman Act, 15 U.S.C. § 1, the Commodity Exchange Act (“CEA”), 7 U.S.C. §§ 1, *et seq.*, and Rules 180.1 and 180.2 promulgated thereunder by the Commodity Futures Trading Commission (“CFTC”) pursuant to the 2010 Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 753, 124 Stat. 1739 (2010).

2. VIX purports to measure expected 30-day market volatility based on the real-time pricing of S&P 500 (“SPX”) Index option contracts (“SPX Options”) listed for trading on the

CBOE. VIX is calculated by using the pricing for SPX Options with Friday expiration dates that are more than 23 days, but less than 37 days, from the current date. The resulting VIX price is published every 15 seconds during regular trading hours (8:30 a.m. to 3:15 p.m. Central time) and extended trading hours (2:00 a.m. to 8:15 a.m. Central time) for SPX Options on the CBOE.

3. Investors cannot invest directly in the VIX because it is an index based on an ever-changing group of SPX Options. However, CBOE Global Markets, Inc. (“CBOE Global Markets”)<sup>1</sup> has designed several derivative instruments related to VIX, including VIX-linked futures (“VIX Futures”),<sup>2</sup> traded on the CFE, and VIX-linked options (“VIX Options”),<sup>3</sup> traded on the CBOE. During the timeframe of this Complaint, trading activity in VIX Futures and VIX Options increased exponentially. Specifically, the average daily contract volume for VIX Futures rose from 1,731 contracts in 2006 to 300,568 contracts in 2017 (through August 24, 2017), a 17,263% increase, and the average daily contract volume of VIX Options rose from 23,491 in 2006 to 687,181 in 2017 (through July 2017), a 23,491% increase.<sup>4</sup>

4. In addition to the VIX Futures and VIX Options, financial institutions, including Credit Suisse AG, Barclays Bank, and ProShares, have issued various exchange-traded funds and

<sup>1</sup> CBOE Global Markets is the publicly-traded holding company of, among other entities, the CBOE and CFE.

<sup>2</sup> A “futures” contract is a promise to buy or sell a particular commodity at a fixed date in the future. That said, trading occurs in the contract, not in the commodity. Financial futures usually take the form of a contract that depends on the value of an index at some future date.

<sup>3</sup> A VIX Option contract is a promise that gives the option holder the right, but not the obligation, to either buy or sell a VIX Futures contract at a specified price during a specified time period. Generally, there are two types of options: calls and puts. A call gives the holder of the option the right, but not the obligation, to buy the underlying futures contract at a certain price (“the strike price”). Conversely, the put gives the holder the right, but not the obligation, to sell the underlying futures contract at the strike price. Puts are usually bought when the expectation is for falling prices; calls are usually purchased when the expectation is for rising prices. The price at which an option is bought or sold is the premium.

<sup>4</sup> Matt Moran, *Record Days for VIX Futures and Options Volume and Open Interest This Month*, CBOE (Aug. 25, 2017), <http://www.cboe.com/blogs/options-hub/2017/08/25/record-days-for-vix-futures-and-options-volume-and-open-interest-this-month>.

exchange-traded notes linked to the pricing of VIX Futures (“VIX-Linked ETFs and ETNs”). Billions of dollars in these VIX-Linked ETFs and ETNs are traded daily, providing investors with easier access to financial instruments related to expected market volatility and allowing investors to bet that the prices of VIX Futures will either increase or decrease. There are presently at least 18 active VIX ETFs and ETNs (and at least an additional 19 that have closed), which have a combined current market cap of about \$3.4 billion.

5. The settlement values of these VIX Futures, VIX Options, VIX-Linked ETFs and ETNs (collectively, “VIX Derivatives”) are not calculated directly from VIX, but rather are determined once a month by an auction during which traders submit offers and bids for SPX put and call options. The auction matches those bids and offers to determine clearing prices and then those clearing prices are used to calculate the final settlement price. The final settlement price value is calculated using a modified VIX calculation that only takes into consideration out-of-the-money (“OTM”)<sup>5</sup> SPX Options, unlike the ordinary VIX calculation which includes both OTM and in-the-money (“ITM”)<sup>6</sup> SPX Options.

6. Upon information and belief, during the period January 1, 2009 to the present, Defendants conspired to make artificial the monthly final settlement price of expiring VIX contracts by placing manipulative SPX Options orders. It is implausible that one Defendant was

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<sup>5</sup> When options are “out-of-the-money,” it means that there is no economic justification to exercise the option, *i.e.*, they have a strike price that would cause the holder of the option to suffer a loss when exercising the option. For example, there is no economic justification to exercise a call option with a \$12 strike price if the underlying futures contract is trading at \$11.

<sup>6</sup> When options are “in-the-money,” it means that there is an economic justification to exercise the option *i.e.*, they have a strike or exercise price that would cause the holder of the option to experience a gain when exercising the option. So, for example, if the call option has a \$12 strike price and the underlying futures contract is trading at \$12.50, there is a strong economic justification to exercise the call option and purchase the futures contract at \$12 and then sell it for a \$0.50 gain.

capable of manipulating the prices of VIX Derivatives unilaterally as ordinary market forces would counteract its efforts.

7. As a result of Defendants' scheme to manipulate prices of the VIX Derivatives, Defendants caused, and continue to cause, injury to investors who transacted in VIX Derivatives at artificial prices during the Class Period (hereinafter defined).

#### **JURISDICTION AND VENUE**

8. This Court has jurisdiction over the subject matter of this action as it arises under Section 1 of the Sherman Act, 15 U.S.C. § 1, Sections 4 and 16 of the Clayton Act, 15 U.S.C. §§ 15, 26, and Section 22 of the CEA, 7 U.S.C. § 25. Further, this Court has jurisdiction under 28 U.S.C. §§ 1331, 1337(a).

9. Venue is proper in this District pursuant to 15 U.S.C. §§ 15 and 22, Section 22 of the CEA, 7 U.S.C. § 25(c), and 28 U.S.C. § 1391(b), (c), and (d), because Defendants are believed to have transacted business throughout the United States, including in this District, and are believed to have resided, found, or have agents within this District, and a significant portion of the affected interstate trade and commerce discussed below was carried out in this District.

10. This Court has personal jurisdiction over each Defendant because, *inter alia*, each Defendant is believed to have: (a) transacted business throughout the United States, including in this District; (b) committed overt acts in furtherance of their illegal scheme and conspiracy throughout the United States, including the manipulation of the prices of VIX Derivatives traded in this District on the NASDAQ and New York Stock Exchange ("NYSE"); (c) had and maintained substantial contacts within the United States, including in this District; and/or (d) directed at and had the intended effect of causing injury to persons residing in, located in, or doing business throughout the United States, including in this District.

11. In connection with the acts alleged in this complaint, defendants, directly or indirectly, used the means and instrumentalities of interstate commerce, including, but not limited to, the mails, interstate telephone communications, and the facilities of the national securities markets. The activities of Defendants were within the flow of, were intended to, and did have a substantial effect on the interstate commerce of the United States.

### **PARTIES**

#### **I. PLAINTIFF**

12. Plaintiff Brian Barry transacted in VIX Derivatives, including SPX VIX Short Term Futures, at prices made artificial because of Defendants' unlawful acts alleged herein at various times throughout the Class Period and suffered injury to his business or property as a result.

#### **II. DEFENDANTS**

13. Defendants Does 1-100 engaged in an illegal conspiracy to manipulate the prices of VIX Derivatives by manipulating the prices or bid/ask quotes of SPX Options traded on the CBOE and/or the CFE and, thus, the prices of VIX. The identity of Defendants is not publicly known or knowable to Plaintiff at this time as electronic trading on the CFE and CBOE is conducted anonymously. Only the CBOE and the Defendants know the identities of the parties entering the manipulative orders. For that reason, Plaintiff does not know the precise number of Defendants but, based on the nature of the manipulative conduct alleged herein, believes that Defendants are a group of financial institutions, market makers, and/or traders on the CBOE and/or CFE. Plaintiff will request leave to amend this Complaint upon uncovering the identity of Defendants.

#### **III. RELEVANT NON-PARTIES**

14. CBOE Global Markets is the publicly-traded holding company of, among other entities, the CFE and CBOE. Its offices are located at 400 South LaSalle Street, Chicago, Illinois.

15. The CFE, a Delaware limited liability company with its principal place of business in Chicago, Illinois, is an exchange founded in 2004. It became a wholly-owned subsidiary of CBOE Global Markets in June 2010.

16. The CBOE, a Delaware corporation with its principal place of business in Chicago, Illinois, is an exchange founded in 1973. It became a wholly-owned subsidiary of CBOE Global Markets in 2010.

### **FACTUAL ALLEGATIONS**

#### **I. BACKGROUND**

##### **A. VIX**

17. VIX, established in 1993, is a real-time financial indicator of market sentiment and volatility based on the midpoint of various SPX Option bid/ask quotes and a real-time estimate of market expectations of volatility in the SPX Index in the 30-day period following measurement.

18. The CBOE explains VIX “is based on the...SPX[] Index, the core index for U.S. equities, and estimates expected volatility by averaging the weighted prices of SPX puts and calls over a wide range of strike prices.”<sup>7</sup> Specifically,

[t]he VIX calculation measures 30–day expected volatility of the S&P 500 Index. The components of the VIX calculation are near- and next-term put and call options with more than 23 days and less than 37 days to expiration. These include SPX options with “standard” 3rd Friday expiration dates and “weekly” SPX options that expire every Friday, except the 3rd Friday of each month. Once each week, the SPX options used to calculate VIX “roll” to new contract maturities. For example, on the second Tuesday in October, the VIX index would be calculated using SPX options expiring 24 days later (i.e., “near-term”) and 31 days later (i.e., “next-term”). On the following day, the SPX options that expire in 30 calendar days would become the “near-term” options and

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<sup>7</sup> *The CBOE Volatility Index - VIX*, CBOE (2014), <http://www.cboe.com/micro/vix/vixwhite.pdf> (last accessed Mar. 23, 2018) at 2.

SPX options that expire in 37 calendar days would be the “next-term” options.<sup>8</sup>

19. The resulting VIX price is published every 15 seconds during regular trading hours (8:30 a.m. to 3:15 p.m. CST) and extended trading hours (2:00 a.m. to 8:15 a.m. CST time) for SPX Options on the CBOE.

### **B. The VIX Derivatives**

20. As stated *supra*, investors cannot directly invest in the VIX index. However, in order to allow investors to invest based on VIX’s potential rise and fall, CBOE Global Markets created derivative investment vehicles linked to the VIX—VIX Futures and VIX Options.

21. VIX Futures and VIX Options are like typical futures and option contracts for commodities, with two differences. First, VIX Futures and VIX Options can only be cash settled because the underlying commodity is the VIX Index itself, which is just a mathematical number. Second, the reference prices for VIX Futures and VIX Options at expiration are determined by a special auction held by CBOE, and not the spot price of the VIX Index on any given day. Additionally, the time period to either buy or sell VIX Options is limited to the expiration date.

22. Moreover, as stated *supra*, financial institutions such as Credit Suisse AG (with VelocityShares), Barclays Bank PLC (as iPath), and ProShares, have issued various VIX-Linked ETNs and ETFs (linked to the pricing of VIX Futures).<sup>9</sup> These VIX-Linked ETFs and ETNs provide investors with easier access to the volatility-based financial instruments and allows them to bet on whether the value of the underlying VIX Index will fall based on the pricing of short-term or medium-term VIX Futures.

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<sup>8</sup> *Id.* at 5.

<sup>9</sup> These instruments include (a) VelocityShares Daily Inverse VIX Short-Term ETN (“XIV”); (b) VelocityShares Daily 2x VIX Short-Term ETN (“TVIX”); (c) ProShares Short VIX Short-Term Futures ETF (“SVXY”); (d) ProShares Ultra VIX Short-Term Futures ETF (“UVXY”); and (e) iPath S&P 500 VIX Short-Term Futures ETN (“VXX”).

23. Billions of dollars in VIX-Linked ETFs and ETNs are traded daily.

24. As evidenced by the charts published by CBOE, reprinted below, trading in VIX Derivatives has increased dramatically since VIX Futures were first introduced in 2004 and VIX Options were introduced in 2006.<sup>10</sup>

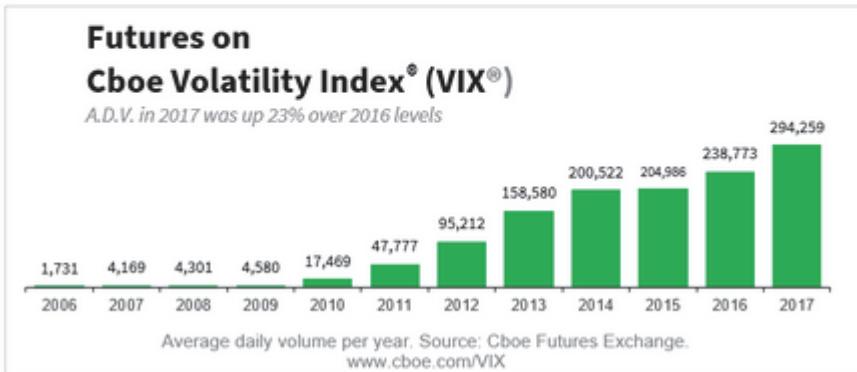
In 2017 the average daily volume for options on the VIX Index rose to 722,356 contracts, up 23% over the 2016 levels. [www.cboe.com/VIX](http://www.cboe.com/VIX)

#### #2 - Record Volume for VIX Options



In 2017 investors engaged in record amounts of both buying and selling of VIX futures, as the average daily volume for the contract rose to more than 294,000 contracts, up 23% over the 2016 levels. [www.cboe.com/VIX](http://www.cboe.com/VIX)

#### #3 - Record Volume for VIX Futures



<sup>10</sup> Matt Moran, *Nine Charts Highlight Nine New Records for Cboe Products in 2017*, CBOE BLOGS (Jan. 5, 2018, 1:49 PM), <http://www.cboe.com/blogs/options-hub/2018/01/05/nine-charts-highlight-nine-new-records>.

## II. MARKET MANIPULATION OF VIX AND VIX DERIVATIVES

### A. Settlement Procedures for VIX Derivatives

25. When a futures or option contract expires, the settlement price, the reference price against which the futures or option contract is measured, determines the contract's value. If the settlement price can be manipulated, so can the value of the derivative.

26. As briefly mentioned *supra*, the settlement price for VIX is not based on the spot price of the VIX Index (the asset underlying the VIX Futures). Rather, it is determined by an auction yielding a price quoted using the ticker symbol VRO. The auction is conducted using a "Hybrid Opening System" ("HOSS"), which allows market participants to transact in SPX Options, which yields an opening price for such options from which VRO is calculated, which in turn determines the final settlement value of VIX Derivatives.

27. Specifically, according to the CBOE and CFE:

The final settlement value [of VIX Derivatives] is calculated from actual opening prices of S&P 500 Index (SPX or SPX Weekly) [O]ptions.... The final settlement value for VIX [F]utures and [VIX O]ptions is a Special Opening Quotation (SOQ) of the VIX Index calculated using opening prices of constituent SPX or SPX Weekly options that expire 30 days after the relevant VIX expiration date. For example, the final settlement value for VIX Derivatives expiring on January 21, 2016 will be calculated using SPX options that expire 30 days later on February 20, 2016. If there is no opening trade, the opening price is the average of an option's bid and ask price determined at the open.

### Opening Procedures for VIX Derivatives on Expiration Days

On expiration days for VIX Derivatives, C[BOE] utilizes a modified Hybrid Opening System (HOSS) that facilitates a single-price open for SPX and SPX Weekly option series.... All orders (including customer and professional) are eligible to rest in the book in order to participate in the modified HOSS opening auction.<sup>11</sup>

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<sup>11</sup> *Settlement Information for VIX Derivatives*, CBOE, <http://cfe.cboe.com/cfe-products/vx-CBOE-volatility-index-vix-futures/settlement-information-for-vix-derivatives> (last accessed Mar. 20, 2018).

28. This separate SOQ auction of SPX Options begins at 7:30 a.m. CST, whereby

C[BOE] starts disseminating messages approximately every 30 seconds that contain certain information about the opening of individual series via the C[BOE] Streaming Markets (CSM) data feed....On expiration days for VIX [D]erivatives, this information is additionally published on the CFE website.<sup>12</sup>

29. At 8:30 a.m. CST, the auction ends, as the trading on non-expiring VIX Derivatives begins.

30. In sum, an auction is held once a month between 7:30 a.m. and 8:30 a.m. CST on the day VIX Derivatives expire, during which traders submit bids and offers for SPX put and call options. The auction matches those bids and offers to determine clearing prices, and those clearing prices are used to compute the settlement price for VIX Derivatives.

#### **B. The Settlement Procedure Leaves VIX Derivatives Susceptible to Manipulation**

31. In May 2017, Professor John M. Griffin and Ph.D. candidate Amin Shams of University of Texas-Austin published a paper entitled “Manipulation in the VIX?”<sup>13</sup> in which they analyze and underline the flaws in the foregoing final settlement procedure.

32. The Griffin/Shams Paper unveils a pattern of an undeniable increase in trading of SPX Options at the time of the VIX settlement. Significantly, Griffin and Shams note that this pattern of trading that spikes at settlement is not observable “in nearly identical OEX or SPY options” nor in “ITM options that are excluded.”<sup>14</sup> Moreover, the paper demonstrates a “strong and statistically significant increase in volume” *of trading at settlement—and only at the*

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<sup>12</sup> *CBOE Volatility Index® (VIX® Index®) FAQs*, CBOE, <http://www.cboe.com/products/vix-index-volatility/vix-options-and-futures/vix-index/vix-faqs> (last accessed Mar. 20, 2018).

<sup>13</sup> See generally John M. Griffin & Amin Shams, *Manipulation in the VIX?*, THE REVIEW OF FINANCIAL STUDIES (Aug. 2, 2017), [http://www.jgriffin.info/wp-content/uploads/2017/12/vix\\_pub.pdf](http://www.jgriffin.info/wp-content/uploads/2017/12/vix_pub.pdf) (the “Griffin/Shams Paper”).

<sup>14</sup> *Id.* at 15–17.

*settlement—of the OTM options to which the VIX settlement is particularly sensitive.* Griffin and Shams conclude that this “evidence is consistent with attempted manipulative activity[.]”<sup>15</sup>

33. To begin their analysis, Griffin and Shams explain the makeup of the VIX setting as “one with two markets with different liquidities and transactions costs: SPX [O]ptions market with large bid-ask spreads that make it difficult to arbitrage away price deviations, and a large and liquid VIX [D]erivative market tied to it that translates such deviations into sizable potential payoffs.”<sup>16</sup> They “refer to the SPX contracts as ‘lower-level’ contracts because they are the base level option contracts that serve as inputs for calculating the value of the VIX through which the ‘upper-level’ VIX [F]utures, and [VIX O]ptions values are ultimately determined at the settlement.”<sup>17</sup>

34. Griffin and Shams then describe three features of the VIX settlement process that leave it particularly open to manipulation. “First, the upper-level VIX market is large and liquid, enabling a trader to invest a sizeable position in VIX [D]erivatives. In contrast, many of the lower-level SPX options, where the VIX values are derived from, are illiquid.”<sup>18</sup> Fluctuations from inclusions of these illiquid OTM options can lead to variation in the value of VIX. Thus, even a small number of trades in the illiquid, deep OTM SPX Options can move the price of those options, which would significantly swing the value of the VIX.<sup>19</sup>

35. “Second, the VIX [D]erivatives are cash settled. Therefore, if the VIX settlement value deviates from its true value, the VIX position will automatically be cashed out at the deviated

<sup>15</sup> *Id.* at 17.

<sup>16</sup> *Id.* at 2.

<sup>17</sup> *Id.*

<sup>18</sup> *Id.* at 7.

<sup>19</sup> *Id.* at 7–8.

price.”<sup>20</sup> For example, if an asset with physical settlement is trading at an irregular price when a given futures contract settles, a manipulator would take possession of a physical asset at an inflated price which may in turn revert to a competitive value before the manipulator can sell the asset. However, where the VIX is artificially inflated, a manipulator gets to cash out his position “at the deviated price.”<sup>21</sup>

36. “Third, the settlement occurs within a short period of time based on the SPX [O]ptions pre-open auction.”<sup>22</sup> Because of the special opening value generated in a narrow window outside normal trading hours, a single manipulative trade can have a significant influence on the settlement calculation. Furthermore, trading in a narrow window outside of normal trading hours means that Defendants do not have to defend their manipulative trades over a longer period of time against market forces present during normal trading hours; a manipulator need only intervene once a month during the pre-opening auctions to keep prices artificially high. If the SOQ settlement window was longer and during normal market hours, Defendants would have difficulty reaping their ill-gotten gains.<sup>23</sup>

37. “Although not all three conditions may be simultaneously needed for manipulation, the occurrence of all three potentially *provides a ripe setting for profitable manipulation.*”<sup>24</sup>

38. Griffin and Shams go on to explain that the “basic steps that a manipulator needs to take include: (1) opening long positions in the VIX [D]erivatives prior to settlement, (2) submitting aggressive buy orders in the SPX [O]ptions during the settlement auction, and

<sup>20</sup> *Id.* at 8.

<sup>21</sup> *Id.*

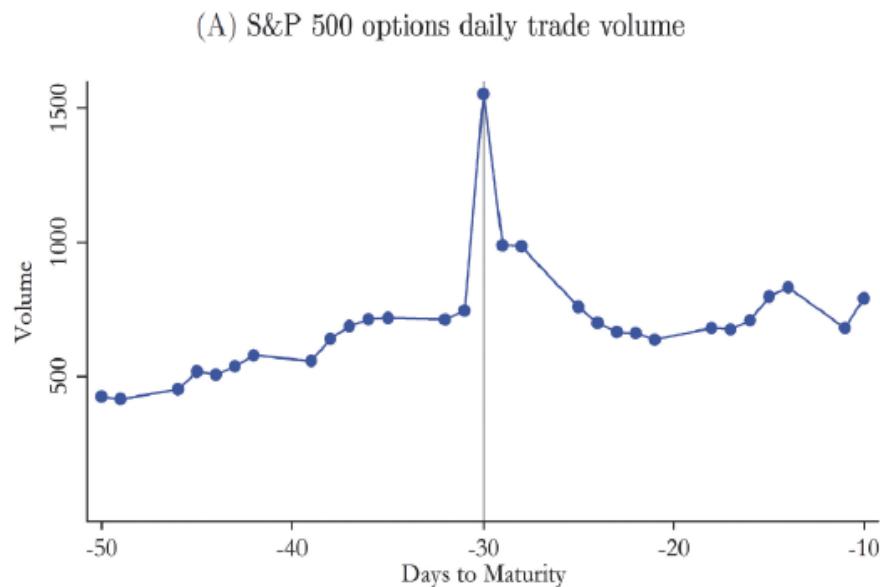
<sup>22</sup> *Id.*

<sup>23</sup> *Id.* at 9.

<sup>24</sup> *Id.* at 8 (emphasis added).

thereby causing the auction-clearing prices of SPX options, and as a result, VIX settlement price to rise, and (3) obtaining the higher price for the upper-level futures or options when they settle.”<sup>25</sup> Such trading will “leave patterns in the data that can be examined.”<sup>26</sup> In examining these patterns, “volume spikes in the SPX [O]ptions” become apparent.<sup>27</sup>

39. Figure 1, Panel A of the Griffin/Shams Paper shows a volume spike in the average daily trade volume for SPX Options 30 days prior to maturity.<sup>28</sup> This spike is not attributable to “any kind of obvious [SPX] market-related event” but rather is “the date that the VIX settles.”<sup>29</sup>



40. Figure 1, Panel B of the Griffin/Shams Paper shows the “average daily trade volume calculated in the same way as in Panel A for SPX Options but excluding the trades

<sup>25</sup> *Id.* at 9.

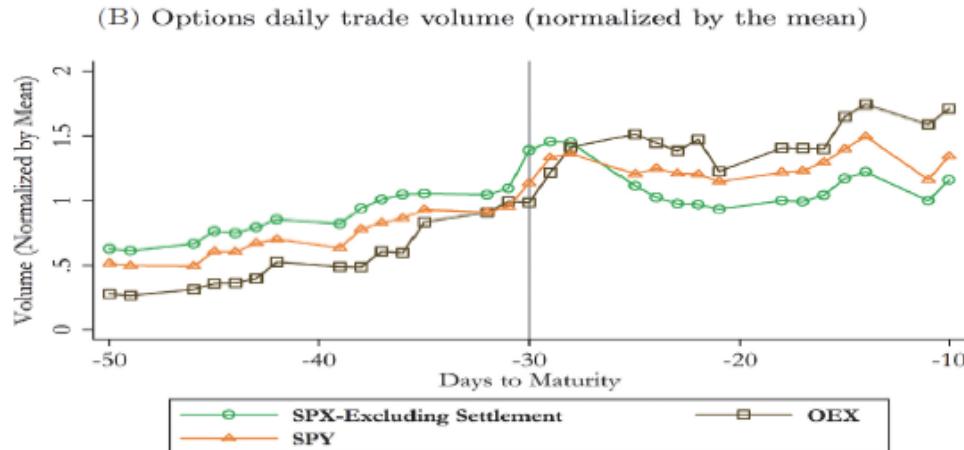
<sup>26</sup> *Id.*

<sup>27</sup> *Id.*

<sup>28</sup> *Id.* at 10-11.

<sup>29</sup> *Id.* at 11.

occurring at the preopening settlement (green circles), S&P 100 options (brown squares), and SPY options (orange triangles).<sup>30</sup> These trading volumes “exhibit no major movement thirty days prior to maturity.”<sup>31</sup>



41. Figure 1, Panel C of the Griffin/Shams Paper illustrates no volume spike in ITM options trading 30 days prior to their expiration, demonstrating “that the volume spike is entirely driven by the OTM options[.]”<sup>32</sup> The VIX formula uses only OTM options.<sup>33</sup>

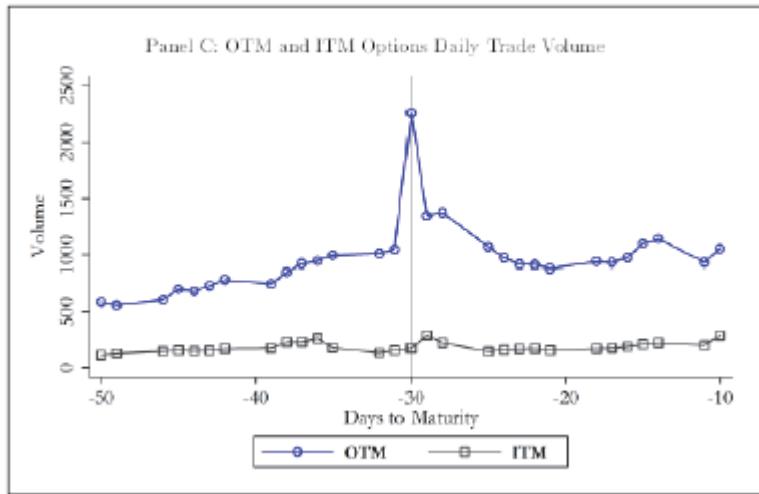
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<sup>30</sup> *Id.* at 11.

<sup>31</sup> *Id.* at 12.

<sup>32</sup> *Id.*

<sup>33</sup> *Id.*



42. The Griffin/Shams Paper further elaborates stating that “someone wishing to manipulate the index should submit increasing volume as [the] sensitivity [of the VIX to price changes of individual put options] increases.”<sup>34</sup> Here, the data supports that “[v]olume does increase [at strike prices] with VIX sensitivity, and the relationship is highly statistically significant.”<sup>35</sup> This relationship is likewise “economically significant, with over half of the variation in settlement volume explained by the VIX sensitivity measure and the date fixed effects.”<sup>36</sup>

43. Figure 2, Panel C reinforces this by showing that “the positive relationship between VIX sensitivity and volume is only confined to the settlement.”<sup>37</sup> On other days, “put options with higher VIX sensitivity trade significantly less.”<sup>38</sup>

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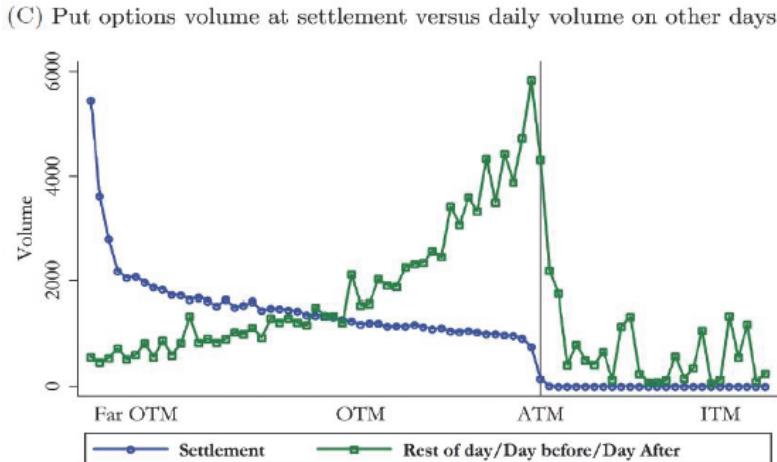
<sup>34</sup> *Id.* at 13.

<sup>35</sup> *Id.*

<sup>36</sup> *Id.*

<sup>37</sup> *Id.*

<sup>38</sup> *Id.*



44. Finally, Griffin and Shams explain how certain options are given disproportionately high weight in the VIX settlement formula and exhibit volume spikes at settlement that are not present at any other times.<sup>39</sup>

45. To round out its analysis, the Griffin/Shams Paper also rules out alternative phenomena that could potentially be driving SPX Option trading volume spikes at settlement.<sup>40</sup> They note that deep OTM options are typically illiquid and expensive to trade, and contemplate whether “the VIX settlement auction...provides an opportunity for those who have pent-up demand to trade deep OTM options.”<sup>41</sup> However, OTM call options, though included in the special settlement procedure, exhibit lower trading volume at settlement. The fact that comparable OTM options trade at lower volumes at settlement contravenes the pent-up liquidity hypothesis, but is

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<sup>39</sup> *Id.* at 15.

<sup>40</sup> See *id.* at 17-27.

<sup>41</sup> *Id.* at 17.

compatible with manipulation.<sup>42</sup> Regression analysis further reveals an inverse relationship between pre-settlement liquidity and settlement volume for put options.<sup>43</sup>

46. The Griffin/Shams Paper also contemplates and dismisses two possible hedging explanations. First, traders are not attempting to hedge a position in upper-level VIX Derivatives through underlying SPX Options. Second, investors are not rolling their hedging positions into SPX Options in a way that mimics the VIX formula. The trading data reveal no volume spikes in closely related exchange-traded products that would afford a similar payoff.

47. Ultimately, the Griffin/Shams Paper explains “that not only is it feasible to influence the VIX settlement, but also we present price and volume patterns at settlement consistent with what one would expect from such strategic trading.”<sup>44</sup>

48. The research demonstrates that a volume spike occurs:

- a. only at the time of VIX settlement;
- b. only in the OTM options that are used to calculate VIX;
- c. not in similar S&P 100 Index (OEX) or S&P 500 ETF (SPY) options, which do not have tradable volatility indices;
- d. proportional to the sensitivity of the VIX to each strike price; and
- e. with a jump for options that have a discontinuously higher weight in the VIX calculation, which does not occur at non-settlement times.

49. Griffin and Shams thus conclude that the most likely explanation for these patterns is manipulation.

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<sup>42</sup> See *id.* at 17-22.

<sup>43</sup> *Id.* at 18.

<sup>44</sup> *Id.* at 39.

50. Shortly after publication of the Griffin/Sham's Paper, Matt Levine, a former banker at Goldman Sachs and lawyer at Watchell, Lipton, Rosen & Katz, who is now a Bloomberg View columnist published an article where he noted:

[If] you are going to manipulate a *tradable* market -- as opposed to a made-up one like Libor -- then VIX looks pretty tempting. The product that you trade (S&P 500 options) is different from the product where you make your money (VIX futures and options), and the trading market is in the relevant sense *smaller* than the derivative market: You can move a lot of value in VIX products by trading a small amount of value, in a confined period of time, in the underlying market. So you can cheerfully lose money executing the manipulation -- trading the S&P options -- and make back more in the derivative.<sup>45</sup>

### **III. ACTUAL MANIPULATION OF VIX SETTLEMENT PRICES**

51. Defendants' continuing manipulation of the VIX began no later than 2009 and is confirmed by examining recent settlement data. Griffin and Shams noted that "the distortions are the largest in 2011, 2012, and 2013 respectively, and they are not caused by 2008 market events when the VIX reached historic high."<sup>46</sup>

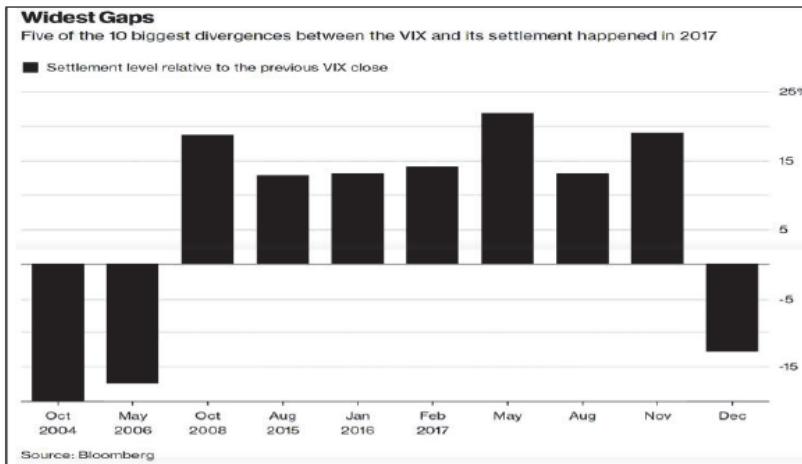
52. Additionally, Bloomberg recently noted that "of the 10 biggest gaps between the VIX settlement value and its closing price the night before, five came in 2017, including December's, which was the biggest discount in 11 years."<sup>47</sup>

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<sup>45</sup> Matt Levine, *VIX Trading, Hoaxes, and Blockchain*, BLOOMBERG (May 24, 2017), <https://www.bloomberg.com/view/articles/2017-05-24/vix-trading-hoaxes-and-blockchain>.

<sup>46</sup> Griffin/Shams Paper at 30.

<sup>47</sup> Nikolaj Gammeltoft and Cecile Vannucci, *Is the VIX Being Gamed? A Sudden Swoon Has Traders Talking Again*, BLOOMBERG (Jan. 10, 2018), <https://www.bloomberg.com/news/articles/2018-01-10/is-the-vix-being-gamed-a-sudden-swoon-has-traders-talking-again>.



53. The months described below are not the only months in which the settlement price was manipulated, but are highlighted because publically available data shows they were months in which the manipulative scheme alleged herein had the largest apparent effects.<sup>48</sup>

Month	Diff. btwn. Stlmt. And Prior Day Close (\$)	Open Interest	Effect on Outstanding Contracts (M)
Jan '18	0.84	50,946	42.5
Dec '17	1.32	71,415	94.6
Nov '17	1.74	50,887	88.5
May '17	1.9	55,926	106.5
Feb '17	1.08	63,982	69.4

54. The January 2018 VIX contract settled on January 17, 2018. On January 16, 2018, the contract settled at approximately \$11.775. Following the January 17, 2018 HOSS auction, the January 2018 contract settled at \$12.61, a price increase the CBOE recorded as approximately \$0.84. The price change is statistically significant at the 95% level and represents the fourth-largest single-day price swing during the preceding 166 trading days on which more than three thousand

<sup>48</sup> Historical Data: Cboe Futures Exchange Daily Volume and Open Interest, CBOE, [https://markets.cboe.com/us/futures/market\\_statistics/historical\\_data/](https://markets.cboe.com/us/futures/market_statistics/historical_data/) (last accessed Mar. 23, 2018) at VX F (Jan 18); VX Z (Dec 17); VX X (Nov 17); VX K (May 17); VS G (Feb 17).

January 2018 contracts were trading on the CBOE. The price increase that occurred at settlement also is notable because volatility, as reflected by the value of VIX futures, generally decreased throughout the life of the contract, a trend which continued in contemporaneous trading of the February 2018 contract. Based on the open interest available at settlement, the \$0.84 price change—which is the direct and proximate result of manipulation of the HOSS auction—transferred approximately \$42.8M in value among contract holders. *Id.*

55. The December 2017 VIX contract settled on December 20, 2017. On December 19, 2017, the contract settled at approximately \$10.075. Following the December 20, 2017 HOSS auction, the December 2017 contract settled at \$8.75, a price decrease the CBOE recorded as \$1.32. The price change is statistically significant at the 95% level and represents the largest single-day price swing during the preceding 165 trading days on which more than three thousand December 2017 contracts were trading on the CBOE. The price decrease that occurred at settlement also is notable because the VIX index plunged at the time of settlement, only to experience a reversal later that morning. Based on the open interest available at settlement, the \$1.32 price change—which is the direct and proximate result of manipulation of the HOSS auction—transferred approximately \$94.3M in value among contract holders. *Id.*

56. The November 2017 contract settled on November 15, 2017. On November 14, 2017, the contract settled at approximately \$12.05. Following the November 15, 2017 HOSS auction, the November 2017 contract settled at \$13.79, a price increase the CBOE recorded as \$1.74. The price change is statistically significant at the 95% level and represents the largest single-day price swing during the preceding 154 trading days on which more than three thousand November 2017 contracts were trading on the CBOE. The price increase that occurred at settlement also is remarkable because volatility, as reflected by the value of VIX futures, generally

decreased throughout the life of the contract, a trend which continued in contemporaneous trading of the December 2017 contract. Based on the open interest available at settlement, the \$1.74 price change—which is the direct and proximate result of manipulation of the HOSS auction—transferred approximately \$88.5M in value among contract holders. *Id.*

57. The May 2017 contract settled on May 17, 2017. On May 16, 2017, the contract settled at approximately \$11.075. Following the May 16, 2017 HOSS auction, the May 2017 contract settled at \$12.98, a price increase the CBOE recorded as \$1.90. The price change is statistically significant at the 95% level and represents the largest single-day price swing during the preceding 152 trading days on which more than three thousand May 2017 contracts were trading on the CBOE. The price increase that occurred at settlement also is remarkable because volatility, as reflected by the value of VIX futures, decreased throughout the life of the contract, a trend which continued in contemporaneous trading of the June 2017 contract. Based on the open interest available at settlement, the \$1.90 price change—which is the direct and proximate result of manipulation of the HOSS auction—transferred approximately \$106.3M in value among contract holders. *Id.*

58. The February 2017 contract settled on February 15, 2017. On February 14, 2017, the contract settled at approximately \$11.175. Following the February 15, 2017 HOSS auction, the February 2017 contract settled at \$12.26, a price increase the CBOE recorded as \$1.08. The price change is statistically significant at the 95% level and represents the second-largest single-day price swing during the preceding 146 trading days on which more than three thousand February 2017 contracts were trading on the CBOE. The price increase that occurred at settlement also is remarkable because volatility, as reflected by the value of VIX futures, decreased throughout the life of the contract, a trend which continued in contemporaneous trading of the March 2017

contract. Based on the open interest available at settlement, the \$1.08 price change—which is the direct and proximate result of manipulation of the HOSS auction—transferred approximately \$69.1M in value among contract holders. *Id.*

59. On February 5, 2018, the Dow Jones Industrial Average had its biggest ever one-point decline. VIX increased 116% on the same day as a result.<sup>49</sup>

60. This increase in VIX led to massive losses in VIX ETPs, in particular, inverse ETPs that are negatively correlated to the VIX. For example, XIV, an inverse VIX-Linked ETN offered by Credit Suisse and traded on the NASDAQ, allowed investors to take a position that the prices of VIX Futures would decline (i.e., that the market would increasingly expect subsiding volatility). Trading opened on February 5, 2018 at a price of \$108.37, representing a total value of at least \$1.63 billion according to reports.<sup>50</sup> “Over the next two days [XIV’s] value declined by 95 percent to an indicative value of \$80 million at the close of trading on Tuesday [February 6][.]”<sup>51</sup> This dramatic decline resulted from a 116% increase in the VIX on February 5, which caused a corresponding inverse decline in XIV, and ultimately led Credit Suisse to liquidate XIV in a termination cash payout on February 21, 2018. The payout reveals a total decrease of at least \$1.54 billion in XIV’s value and an equivalent loss to investors.

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<sup>49</sup> Julia Horowitz & Matt Egan, *Market fear is back in a big way*, CNN MONEY (Feb. 5, 2018), <http://money.cnn.com/2018/02/05/investing/vix-volatility-index-dow/index.html>.

<sup>50</sup> See Thomas Franck, *Obscure security linked to stock volatility plummets 80% after hours, sparking worries of bigger market effect*, CNBC (Feb. 5, 2018), <https://www.cnbc.com/2018/02/05/xiv-exchange-traded-security-linked-to-volatility-plummets-80-percent.html>; Landon Thomas Jr., *Volatility rattles stocks, and investors who bet on continuing calm*, THE NEW YORK TIMES (Feb. 6, 2018), <https://www.nytimes.com/2018/02/06/business/stock-market-volatility.html>; *Velocity Shares Pricing Supplement issued by Credit Suisse AG*, CREDIT SUISSE AG (Jan. 29, 2018), [http://app.velocitysharesetns.com/files/prospectus/CS\\_VIX\\_VelocityShares\\_ETN\\_Amended\\_Final\\_Pricing\\_Supplement\\_AR48\\_long\\_form\\_2.PDF](http://app.velocitysharesetns.com/files/prospectus/CS_VIX_VelocityShares_ETN_Amended_Final_Pricing_Supplement_AR48_long_form_2.PDF).

<sup>51</sup> Matt Levine, *Inverse Volatility Products Almost Worked*, BLOOMBERG VIEW (Feb. 8, 2018), <https://www.bloomberg.com/view/articles/2018-02-09/inverse-volatility-products-almost-worked>.

61. February 20, 2018 was the last day of trading XIV before Credit Suisse liquidated the ETN.

**A. Losses and Antitrust Injury**

62. Defendants injured Plaintiff and other members of the Class by manipulating the prices of VIX Derivatives.

63. Pricing of VIX Derivatives, like goods, is based on fundamental market forces of supply and demand. Specifically, the prices of VIX Derivatives are based on the price of VIX and the SPX market. Defendants understood that they could directly manipulate the prices of VIX Derivatives through manipulation of the pricing of the VIX.

64. Defendants' combination, conspiracy, and/or agreement to manipulate the prices of VIX Derivatives injured competition in the market for VIX Derivatives in the United States.

65. Defendants' unlawful conduct deprives Plaintiff and the Class members who transact in VIX Derivatives of a competitive marketplace and exposes them to trade at artificial prices. Upon information and belief, absent Defendants' collusion and consequential artificial pricing of VIX Derivatives, those transacting in VIX Derivatives would have transacted at competitive prices and reaped benefits of competition.

66. As a direct, intended, foreseeable, and proximate result of Defendants' unlawful conspiracy and acts in furtherance of their conspiracy, Plaintiff and Class members have been injured in their business and property, in violation of the federal antitrust laws.

67. The injury to Plaintiff and Class members is the type the antitrust laws were designed to prevent and directly flows from Defendants' unlawful anticompetitive conduct.

68. According to a preliminary analysis performed by Fideres Partners LLP—an expert consulting firm with substantial experience analyzing manipulation of complex financial

instruments and quantifying the resultant losses—“investors in VIX futures expiring between 2006 and 2017 may have suffered losses of up to \$950million (*sic*) as a result of’ the manipulation.<sup>52</sup>

### **B. Effect on Interstate Commerce**

69. Defendants’ manipulation of the pricing of VIX Derivatives had a direct, substantial, and foreseeable impact on interstate commerce in the United States.

70. VIX Derivatives are traded in interstate commerce with many billions of dollars of transactions in VIX Derivatives are entered into each year in the United States.

71. Upon information and belief, Defendants specifically intended to target their unlawful conduct to affect commerce, including interstate commerce within the United States, by combining, conspiring, and/or agreeing to manipulate the prices of VIX Derivatives.

72. Defendants’ unlawful conduct had a direct and adverse impact on competition in the United States. Absent Defendants’ combination, conspiracy, and or agreement to manipulate the prices of VIX Derivatives, the prices of VIX Derivatives would be determined by a competitive, efficient market.

### **C. Other Evidence of VIX Manipulation, Including Regulatory Actions and Governmental Investigations**

73. In December 2017, the CBOE announced disciplinary action against DRW Securities, L.L.C., in connection with its participation in the settlement procedure for volatility-related futures contracts that track oil, Brazilian equities, and emerging markets. Although the consent letter does not reference VIX contracts, Professor Griffin indicated that “CBOE...recently fined a firm for the exact same activity we identified in our paper.<sup>53</sup>

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<sup>52</sup> See Steffen Henning, *Playing on Fear: Manipulation in the Volatility Market*, FIDERES (Feb. 16, 2018), <http://fideres.com/publications/playing-on-fear>.

<sup>53</sup> See Gunjan Banerji, *Regulator Looks Into Alleged Manipulation of VIX, Wall Street’s “Fear Index,”* WALL STREET JOURNAL (Feb. 13, 2018), <https://www.wsj.com/articles/wall-street-regulator-probes-alleged-manipulation-of-vix-a-popular-volatility-gauge-1518547608>.

74. On February 13, 2018, The Wall Street Journal revealed that the Financial Industry Regulatory Authority (“FINRA”) was “scrutinizing whether traders placed bets on S&P 500 options to influence prices for VIX futures.”<sup>54</sup>

75. On February 12, 2018, an anonymous whistleblower “who has held senior positions at some of the largest investment firms in the world” submitted a letter to the Securities and Exchange Commission (“SEC”) and the CFTC alleging that a “flaw [in the VIX] allows trading firms with sophisticated algorithms to move the VIX up or down by simply posting quotes on S&P options and without needing to physically engage in any trading or deploying any capital.”<sup>55</sup> According to the Whistleblower Letter, this manipulative activity “has led to multiple billions in profits effectively [being] taken away from institutional and retail investors[.]”<sup>56</sup> As the Whistleblower Letter explains, “VIX is highly subject to manipulation by market participants with the ability to rapidly post quotes in the market for [SPX Options]” and “because the VIX is a theoretical index, which does not rely on trading activity but mid-prices, [it] can be moved up and down by posting quotes without any physical trading taking place.”<sup>57</sup> The Whistleblower Letter further suggests that the collapse of certain VIX Derivatives on February 5, 2018, including XIV and UVXY, was partially due to market manipulation that helped double the price of the VIX.<sup>58</sup>

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<sup>54</sup> *Id.*

<sup>55</sup> Letter from Jason Zuckerman & Matt Stock to James McDonald, Esq., Director of Division of Enforcement, Commodity Futures Trading Commission & Stephanie Akavian, Esq. & Steven Peikin, Esq., Co-Directors, Division of Enforcement, Securities and Exchange Commission (Feb. 12, 2018), <https://assets.bwbx.io/documents/users/iqjWHBFdfxIU/r8LCxXQ4CfqU/v0> (the “Whistleblower Letter”).

<sup>56</sup> *Id.* at 2.

<sup>57</sup> *Id.* at 1–2.

<sup>58</sup> *Id.* at 2–3.

76. Former CFTC Commissioner, Bart Chilton, and former SEC Chairman, Harvey Pitt, have made public statements indicating that VIX contract settlement prices have been, or are being, manipulated. Specifically, on February 14, 2018, Chilton stated that the allegation of VIX contract manipulation “*rings true* to me,” adding that ‘there’s certainly enough smoke.’<sup>59</sup> Pitt further reinforced Griffin and Sham’s findings on February 16, 2018 during an appearance on CNBC, where he stated:

The volatility we have is troubling. And a product like VIX could be valuable to institutional investors who want to hedge against a precipitous drop in the market. ***But it's quite clear that these indexes' options can be manipulated.*** And when there were complaints about possible manipulation, the CBOE, as the marketplace, should have sprung in to action.<sup>60</sup>

77. On February 23, 2018, it was reported that the CFTC, SEC, and FINRA are all currently investigating VIX-related manipulation.<sup>61</sup> A report from *The Financial Times*, specifically states that FINRA is investigating whether Defendants “influence[d] prices of derivatives based on the [VIX] benchmark.”<sup>62</sup>

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<sup>59</sup> See Matthew J. Belvedere, *Former CFTC commissioner: Whistleblower allegation about volatility index manipulation ‘rings true’*, CNBC (Feb. 14, 2018), <https://www.cnbc.com/2018/02/14/ex-cftc-head-bart-chilton-on-whistleblower-vix-manipulation-allegation.html>.

<sup>60</sup> See Mark DeCambre, *Ex-SEC chairman says ‘it’s quite clear’ Wall Street’s ‘fear gauge’ can be manipulated*, MARKETWATCH (Feb. 16, 2018), <https://www.marketwatch.com/story/ex-sec-chairman-says-its-quite-clear-wall-streets-fear-gauge-can-be-manipulated-2018-02-16>.

<sup>61</sup> See Benjamin Bain & Matt Robinson, *VIX Funds Face Fresh Scrutiny from U.S. Regulators*, BLOOMBERG (Feb. 23, 2018), <https://www.bloomberg.com/news/articles/2018-02-23/vix-fund-blowups-spur-u-s-to-probe-if-misconduct-played-a-role>.

<sup>62</sup> Robbin Wigglesworth & Nicole Bullock, *US watchdog probes possible manipulation of volatility index*, THE FINANCIAL TIMES (Feb. 13, 2018), <https://www.ft.com/content/f2ec8290-1108-11e8-940e-08320fc2a277>.

### **CLASS ALLEGATIONS**

78. Plaintiff brings this action as a class action under Rules 23(a) and 23(b)(3) of the Federal Rules of Civil Procedure, on behalf of himself , and all others similarly situated. The Class is defined as:

All persons or entities other than Defendants and their employees, affiliates, parents, subsidiaries or co-conspirators (whether or not named in this Complaint) who transacted in VIX Derivatives from January 2009 until the present.

79. The Class Period is defined as January 1, 2009 until the present.

80. Plaintiff reserves the right to revise the definition of the Class based upon subsequently discovered information and reserves the right to establish Sub-Classes where appropriate.

81. The Class is so numerous that joinder of all potential members is impracticable. While the exact number of Class members is unknown to Plaintiff at this time, Plaintiff believes that there are at least thousands of proposed members of the Class throughout the United States.

82. Plaintiff's claims are typical of the claims of the other members of the class. Plaintiff and members of the Class sustained damages arising out of Defendants' common course of conduct in violation of law as complained herein.

83. Plaintiff will fairly and adequately protect the interests of the members of the Class and has retained counsel competent and experienced in class action litigation, including commodity manipulation and antitrust class action litigation.

84. Common issues of fact and law include but are not limited to:

- a. Whether Defendants unreasonably restrained trade in violation of the Sherman Act, 15 U.S.C § 1;

- b. Whether Defendants' conduct is a *per se* violation of Section 1 of the Sherman Act;
- c. Whether Defendants engaged in a combination, conspiracy, and/or agreement to manipulate the prices of VIX Derivatives;
- d. Whether Defendants manipulated the settlement prices of VIX Derivatives in violation of the CEA;
- e. Whether Defendants are liable under the CEA for such manipulation;
- f. Whether such manipulation resulted in artificial prices for VIX Derivatives;
- g. Whether such injury or the extent of such artificiality may be established by common, class-wide means, including, for example, by regression analysis, econometric analysis, or other economic tests;
- h. The identities of the participants of the conspiracy;
- i. The duration of the conspiracy;
- j. The nature and extent of Defendants' violations; and
- k. The appropriate relief.

85. A class action is superior to all other available methods for the fair and efficient adjudication of this controversy. Plaintiff knows of no difficulty to be encountered in the management of this litigation that would preclude its maintenance as a class action.

86. Class action status is warranted under Rule 23(b)(3) because questions of law or fact common to Class members predominate over any questions affecting only individual Class members, and a class action is superior to other available methods for the fair and efficient adjudication of this controversy. The records of commodity futures traders are required to be

maintained by FCMs (futures commission merchants). Plaintiff does not anticipate any difficulties in the identification of Class members, notice to Class members or other aspects of the management of this action as a class action.

87. The Class may also be certified under Rule 23(b)(1)(A) and (B) because the prosecution of separate actions by individual Class members would create a risk of inconsistent or varying adjudications with respect to individual Class members, which would establish incompatible standards of conduct for Defendants, would be dispositive of the interests of nonparties to the individual adjudications, and would substantially impair the ability of such nonparties to protect their interests.

88. The Class may also be certified under Rule 23(b)(2) because Defendants have acted on grounds generally applicable to the Classes, thereby making it appropriate to award final injunctive relief or corresponding declaratory relief with respect to the Classes.

89. The interest of Class members in individually controlling the prosecution of separate actions is theoretical and not practical. The Class has a high degree of similarity and is cohesive, and Plaintiff anticipates no difficulty in the management of this matter as a class action.

**EQUITABLE TOLLING OF THE STATUTE OF LIMITATIONS AND  
FRAUDULENT CONCEALMENT**

90. Any applicable statute of limitations has been tolled by Defendants' knowing and active concealment of their manipulation of the prices of VIX Derivatives. By its very nature, the unlawful activity, alleged herein, that Defendants engaged in was self-concealing. Defendants, *inter alia*, conspired and engaged in secret and surreptitious activities in order to manipulate and make artificial prices for VIX Derivatives.

91. Plaintiff could not in the exercise of due diligence have discovered Defendants' wrongdoing. Because Defendants' manipulative behavior was self-concealing and Defendants

took further active steps to conceal the unlawful behavior, Plaintiff and Class members remained unaware of these violations during the limitations period.

92. The identity of Defendants is not publicly known or knowable to Plaintiff at this time as electronic trading on the CFE and CBOE is conducted anonymously. Only the CBOE and the Defendants know the identities of the parties entering the manipulative orders and CBOE will not release them. Additionally, the CBOE and CFE collect a plethora of information in connection with orders, including Order Entry Operator identifications, Tag 50 IDs, User Assigned IDs, and Clearing Info. It will thus be necessary for Plaintiff to subpoena third parties (such as the CBOE) to obtain information concerning Defendants' identities.

93. Moreover, in these exchange-based transactions, Plaintiff and Class Members have no way of knowing who their trading counterparties were without formal processes, as the CBOE keeps those identities confidential as a matter of policy. The CBOE has promulgated a "Confidentiality Policy for Information Received or Reviewed in a Regulatory Capacity," which, among other things, provides for the confidentiality of "Position Data," which includes "Data collected via the reporting of large trader positions . . . as well as clearing member position data," and "Detailed Transaction Data," which includes "Trade data at the specific account level for individual trades from which market positions and/or profit and loss might be derived."<sup>63</sup>

94. As alleged herein, Defendants' manipulation of the prices of VIX Derivatives was material to Plaintiff and the Class members at all relevant times. Within the time period of any applicable statutes of limitations, Plaintiff and Class members could not have discovered through exercise or reasonable diligence that Defendants were manipulating the prices of VIX Derivatives, which Defendants fraudulently concealed.

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<sup>63</sup> Confidentiality Policy for Information Received or Reviewed in a Regulatory Capacity, CFE, <https://cfe.cboe.com/aboutcfe/legal/pdfs/confidentialitypolicy.pdf> (last accessed Mar. 13, 2018).

95. Because Defendants employed acts and techniques that were calculated to wrongfully conceal the existence of such illegal conduct, Plaintiff and the Class could not have discovered the existence of this unlawful conduct any earlier than the announcement of regulatory investigations in early 2018.

96. Due to Defendants' fraudulent concealment and the facts stated above, any applicable statute of limitations affecting or limiting the rights of action by Plaintiff or members of the Class has been tolled during the period of such fraudulent concealment.

**COUNT I**  
**For Violations of Section 1 of the Sherman Act**  
**(15 U.S.C. § 1)**

97. Plaintiff incorporates by reference the preceding allegations.

98. As alleged herein, Defendants entered into a continuing combination, conspiracy and/or agreement in restraint of trade to manipulate the prices of VIX Derivatives. This combination, conspiracy, and/or agreement unreasonably restrained trade in violation of the federal antitrust laws.

99. Specifically, the anticompetitive combination, conspiracy, and/or agreement alleged herein is a *per se* violation of Section 1 of the Sherman Act, 15 U.S.C. § 1 ("Section 1"). Alternatively, the anticompetitive combination, conspiracy, and/or agreement alleged herein resulted in substantial anticompetitive effects in the market for VIX Derivatives in the United States in violation of Section 1.

100. Defendants intended to restrain trade and actually restrained trade in violation of Section 1. Defendants shared a conscious commitment to the common scheme designed to achieve the unlawful objective of manipulating the prices of VIX Derivatives.

101. The anticompetitive combination, conspiracy, and/or agreement alleged herein unreasonably restrained trade. There is no legitimate business justification for, or procompetitive

benefits of, Defendants' unreasonable restraint of trade. Any alleged procompetitive benefit or business justification is pretextual and/or could have been achieved through less restrictive means.

102. The anticompetitive combination, conspiracy, and/or agreement alleged herein occurred within the flow of and substantially affected interstate commerce.

103. As a direct and proximate result of Defendants' anticompetitive scheme and concrete acts in furtherance of that scheme, Plaintiff and members of the Class have been injured in their business and property by reason of Defendants' violations of Section 1, within the meaning of Section 4 of the Clayton Antitrust Act, 15 U.S.C. § 15.

104. Unless enjoined, Defendants' anticompetitive combination, conspiracy, and/or agreement will continue.

105. Plaintiff's and the Class's injuries are of the type the antitrust laws were designed to prevent and are a direct result of Defendants' unlawful anticompetitive activity.

106. Plaintiff and the Class are entitled to treble damages for violations of the Sherman Act alleged herein.

107. Plaintiff and the Class are also entitled to injunctive relief, costs, attorneys' fees, and equitable relief, pursuant to 15 U.S.C. § 26.

**COUNT II**  
**For Violations of the Commodity Exchange Act and Rule 180.2**  
**(7 U.S.C. §§ 1, *et seq.*)**

108. Plaintiff incorporates by reference the preceding allegations.

109. Defendants specifically intended to and did cause unlawful and artificial final settlement prices of VIX Derivatives in violation of the CEA, 7 U.S.C. §§ 1, *et seq.*

110. As alleged herein, Defendants traded a substantial number of OTM SPX Options during the auctions for determining the final settlement price of VIX Derivatives.

111. Defendants had no legitimate economic purpose for their transactions in OTM SPX Options and, instead, engaged in those transactions for the sole or principal purpose of influencing the final settlement price of VIX Derivatives.

112. Defendants' transactions created false and misleading market signals, including about the true level of supply and demand for SPX options at various strike prices and for VIX Derivatives, resulting in artificial final settlement prices for VIX Derivatives that did not reflect the legitimate forces of supply and demand.

113. Defendants knowingly engaged in such transactions for the express purpose of influencing the final settlement price of VIX Derivatives because they held significant positions that would benefit from that influence.

114. By their intentional and unlawful conduct, Defendants caused the prices of VIX Derivatives to be artificial, in violation of 7 U.S.C. §§ 9(3), 13(a)(2), 25(a), and 17 C.F.R. § 180.2.

115. Plaintiff and others who transacted in VIX Derivatives through final settlement during the Class Period transacted at artificial and unlawful prices resulting from Defendants' manipulations and were injured as a direct result thereof and suffered damages.

116. Plaintiff and the Class are each entitled to damages for the violations of the CEA alleged herein.

**COUNT III**  
**For Violations of the Commodity Exchange Act and Rule 180.1**  
**(7 U.S.C. §§ 1, *et seq.*)**

117. Plaintiff incorporates by reference the preceding allegations.

118. Under Section 6(c)(1) of the CEA, as amended, codified at 7 U.S.C. § 9(1), and Section 22 of the CEA, as amended, 7 U.S.C. § 25, it is unlawful for any person, directly or indirectly, to use or employ or attempt to use or employ, in connection with any swap, or a contract of sale of any commodity in interstate commerce, or for future delivery on or subject to the rules

of any registered entity, any manipulative or deceptive device or contrivance, in contravention of such rules and regulations as the CFTC, which shall promulgate by not later than 1 year after July 21, 2010.

119. In July 2011, the CFTC promulgated Rule 180.1(a), 17 C.F.R. § 180.1(a), which provides, in relevant part:

**§ 180.1 Prohibition on the employment, or attempted employment, of manipulative and deceptive devices.**

- (a) It shall be unlawful for any person, directly or indirectly, in connection with any swap, or contract of sale of any commodity in interstate commerce, or contract for future delivery on or subject to the rules of any registered entity, to intentionally or recklessly:
  - (1) Use or employ, or attempt to use or employ, any manipulative device, scheme, or artifice to defraud;
  - (2) Make, or attempt to make, any untrue or misleading statement of a material fact or to omit to state a material fact necessary in order to make the statements made not untrue or misleading;
  - (3) Engage, or attempt to engage, in any act, practice, or course of business, which operates or would operate as a fraud or deceit upon any person; or,
  - (4) Deliver or cause to be delivered, or attempt to deliver or cause to be delivered, for transmission through the mails or interstate commerce, by any means of communication whatsoever, a false or misleading or inaccurate report concerning crop or market information or conditions that affect or tend to affect the price of any commodity in interstate commerce, knowing, or acting in reckless disregard of the fact that such report is false, misleading or inaccurate.

120. Defendants intentionally, or at least recklessly, violated Rule 180.1(a) by transacting in OTM SPX Options during the auction for determining the final settlement prices of VIX Derivatives, transactions for which Defendants had no legitimate economic purpose and instead which were engaged in for the sole or principal purpose of influencing the final settlement price of VIX Derivatives. Defendants' transactions created false and misleading market signals, including about the true level of supply and demand for SPX options at various strike prices and

for VIX Derivatives, resulting in artificial final settlement prices for VIX Derivatives that did not reflect the legitimate forces of supply and demand.

121. Plaintiff and the Class are each entitled to damages for the violations of the CEA alleged herein.

**COUNT IV**  
**For Aiding and Abetting Violations of the Commodity Exchange Act**  
**(7 U.S.C. §§ 1, *et seq.*)**

122. Plaintiff incorporates by reference the preceding allegations.

123. As an alternative to Counts II and III, and solely if Defendants (or any one of them) are not found liable for a primary violation of the CEA, Defendants are liable for aiding and abetting market manipulation.

124. Each and every Defendant had extensive knowledge of the manipulation and, with such knowledge, materially assisted the manipulation by the other Defendants.

125. Each Defendant made and benefited from the manipulative acts and willfully aided, abetted, counseled, induced, or procured the commission of violations of the CEA by the other Defendants.

126. Each Defendant supervised the making of and benefited from the manipulative acts and willfully aided, abetted, counseled, induced, or procured the commission of violations of the CEA by the other Defendants.

127. Each Defendant, by and through their respective partners, agents, employees and/or other persons, benefited from the manipulative acts and willfully aided, abetted, counseled, induced, or procured the commission of violations of the CEA by the other Defendants.

128. Each Defendant participated in the development of the manipulative scheme and participated in the execution of, and supervised, the manipulative acts. Each Defendant also

benefited from the manipulative acts and willfully aided, abetted, counseled, induced, or procured the commission of violations of the CEA by the others.

129. Defendants each played their component role and each knowingly aided, abetted, counseled, induced, or procured the violations alleged herein. Defendants did so knowing of each other's manipulation of the final settlement prices of VIX Derivatives, and willfully intended to assist these manipulations, which resulted in artificiality in the market for those instruments.

130. Plaintiff and Class members are each entitled to actual damages for the violations of the CEA alleged herein.

**PRAYER FOR RELIEF**

WHEREFORE, Plaintiff prays for relief and judgment, as follows:

- A. For an order certifying this lawsuit as a class action pursuant to Rules 23(a), (b)(2) and (b)(3) of the Federal Rules of Civil Procedure, and designating Plaintiff as Class representative and Plaintiff's counsel as Class Counsel;
- B. For a judgement awarding Plaintiff and the Class damages, as well as punitive or exemplary damages, against Defendants for their violations of the CEA, together with prejudgment interest at the maximum rate allowable by law;
- C. For a judgment awarding Plaintiff and the Class treble damages, as well as punitive or exemplary damages, against Defendants for their violations of the Sherman Act, together with prejudgment interest at the maximum rate allowable by law;
- D. For a judgment determining that Defendants, their affiliates, successors, transferees, assignees and other officers, directors, partners, agents and employees thereof, and all other persons acting or claiming to act on their behalf or in concert with them, be permanently enjoined and restrained from in any manner continuing, maintaining or renewing the conduct, contract, conspiracy, or combination alleged herein, or from entering into any other contract,

conspiracy, or combination having a similar purpose or effect, and from adopting or following any practice, plan, program, or device having a similar purpose or effect;

E. For an order awarding Plaintiff and the Class their reasonable costs and expenses incurred in this action, including counsel fees and expert fees; and

F. For such other and further relief as the Court may deem just and proper.

**JURY DEMAND**

Plaintiff hereby demands a trial by jury.

DATED: March 23, 2018

/s/ Hollis Salzman

Hollis Salzman

Kellie Lerner

Nahid A. Shaikh

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